 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX95LA096		Aircraft Registration Number: N9293Z	
		Occurrence Date: 02/03/1995		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place CHOWCHILLA	State CA	Zip Code 93610	Local Time 1115	Time Zone PST	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer HILLER		Model/Series UH-12E /UH-12E		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On February 3, 1995, about 1115 Pacific standard time, a Hiller UH-12E, N9293Z, crashed during an aerial application flight near Chowchilla, California. The helicopter was operated by Streeter Flying Service of Merced, California, under the provisions of 14 CFR Part 137 of the Federal Aviation Regulations. Visual meteorological conditions prevailed. The helicopter incurred destroyed damage. The certificated commercial pilot, the sole occupant, was not injured. The flight originated at the Chowchilla Airport on the day of the accident about 1045 as a local area aerial application flight.</p> <p>In a telephone interview, the pilot/operator said he was applying chemicals to a field at a slow airspeed about 10 feet off the ground. A severe vibration started through the airframe, and the pilot decided to land immediately. The pilot was turning to a landing area when the vibration suddenly ceased, the helicopter fell to the ground on its nose, and rolled over onto its top.</p> <p>Federal Aviation Administration inspectors from the Fresno, California, Flight Standards District Office responded to the scene and examined the wreckage. The inspectors reported that one main rotor blade, still attached to a portion of the hub, was found more than 100 yards from the helicopter. The second blade was found attached to the remainder of the hub, about 150 feet from the wreckage. The rotor mast and transmission were found about 80 feet away. The mast and transmission were noted to have been torn out of the airframe.</p> <p>The operator said the main rotor hub, part No. 51437-11, serial No. 2406A, was a military surplus component acquired with a total operating history of 1,571 hours. According to the aircraft records furnished by the operator, the hub had accumulated an additional 404 operating hours in service at the time of the accident.</p> <p>An engineering representative of Hiller Helicopters stated that the main rotor hub, by serial number sequence, was manufactured in the early 1960s. The component has a definitive 2,500-hour life limit which cannot be extended by overhaul.</p> <p>Examination of the helicopter maintenance records revealed that the helicopter had accrued a total time of 3,122 hours at the time of the accident. The last 100- and 50-hour inspections were accomplished January 10 and 26 respectively, 54 and 16 hours prior to the accident. Specific inspections for hub cracks in the area of the control rotor trunnion in accordance with AD 73-20-03 were noted as accomplished on January 10 and 26, and, on the morning of the accident.</p> <p>A witness was interviewed who was present during the preflight inspection of the helicopter prior to the accident flight. The witness is a helicopter pilot who has no prior experience with the Hiller UH-12 series. He was to ride to a job site in the accident helicopter, then perform his aerial application flights in a Bell 206 already at the field. The witness stated that while he was observing the pilot do the inspection he observed a crack in the main rotor hub. He was asked</p>					
<div>FACTUAL REPORT - AVIATION</div> <div>Page 1</div>					

National Transportation Safety Board

FACTUAL REPORT**AVIATION**

NTSB ID: LAX95LA096

Occurrence Date: 02/03/1995

Occurrence Type: Accident

Narrative (Continued)


to describe the crack and its location specifically. He reported that it was about 1-inch long and was inside the conical diameter where the mast goes near some stud holes. When verbally presented with the provisions of AD 73-20-03 and the specific areas to be inspected, the witness stated that the crack was in the area described in the AD. Under questioning, the witness stated that he clearly observed the hub arms at the Tension-Torsion (TT) pin hole area and did not see any crack visible on the external side.


The witness said that after seeing the crack he questioned the pilot about it. The witness said the pilot told him, "They (the hubs) always crack there, don't worry." The witness elected not to fly in the helicopter.


The two pieces of the fractured and separated main rotor hub were recovered and sent to the National Transportation Safety Board Metallurgical Laboratory for examination and analysis. The complete metallurgical examination report is attached to this report.

The examination revealed that the hub separated due to a fracture through its center. Visual, microscopic, and SEM examinations disclosed that the fracture through the hub center stemmed from fatigue cracks which initiated from the tension-torsion pin hole on the leading edge side of one hub arm. The origin point of the fatigue crack was determined to be inside the TT pin hole. The origin point exhibited corrosion deposits typically seen in aluminum alloys. Longitudinal scratches were found on the inside bore of the hole.

In addition to the fatigue crack through the hub center, two smaller preexisting fatigue cracks were observed in the lower control rotor trunnion mounting stud holes. These cracks were found to be about 0.25 and 0.8 inches, respectively, and were in the area identified by the witness as where he observed the cracks during the preflight inspection of the helicopter.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX95LA096			
		Occurrence Date: 02/03/1995			
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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: NONE					
VFR Approach/Landing: None					
Aircraft Information					
Aircraft Manufacturer HILLER		Model/Series UH-12E /UH-12E		Serial Number 1548	
Airworthiness Certificate(s): Restricted (Special)					
Landing Gear Type: Skid					
Amateur Built Acft? No	Number of Seats: 3	Certified Max Gross Wt. 2750 LBS		Number of Engines: 1	
Engine Type: Reciprocating	Engine Manufacturer: LYCOMING		Model/Series: VO-540	Rated Power: 310 HP	
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 01/1995	Time Since Last Inspection 78 Hours		Airframe Total Time 3028 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type No	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner RANDY TESTMAN		Street Address P.O. BOX 826			
		City MENTONE	State CA	Zip Code 92359	
Operator of Aircraft STEPHEN R. STREETER		Street Address 3240 ARBOLEDA			
		City MERCED	State CA	Zip Code 95340	
Operator Does Business As: STREETER FLYING SERVICE			Operator Designator Code: ROHG		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate: Agricultural Operator		
Regulation Flight Conducted Under: Part 137: Agricultural					
Type of Flight Operation Conducted: Aerial Application;Unknown; Unknown; Unknown					
FACTUAL REPORT - AVIATION					


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First Pilot Information																																																																																													
Name		City		State	Date of Birth																																																																																								
On File		On File		On File	Age																																																																																								
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Sex: M	Seat Occupied: Center	Occupational Pilot? Civilian Pilot		Certificate Number: On File																																																																																									
Certificate(s): Commercial																																																																																													
Airplane Rating(s): Multi-engine Land; Single-engine Land; Single-engine Sea																																																																																													
Rotorcraft/Glider/LTA: Helicopter																																																																																													
Instrument Rating(s): Airplane																																																																																													
Instructor Rating(s): None																																																																																													
Current Biennial Flight Review?																																																																																													
Medical Cert.: Class 2		Medical Cert. Status: Valid Medical--w/ waivers/lim.		Date of Last Medical Exam: 12/1993																																																																																									
<table border="1"> <tr> <th>- Flight Time Matrix</th> <th>All A/C</th> <th>This Make and Model</th> <th>Airplane Single Engine</th> <th>Airplane Multi-Engine</th> <th>Night</th> <th colspan="2">Instrument Actual Simulated</th> <th>Rotorcraft</th> <th>Glider</th> <th>Lighter Than Air</th> </tr> <tr> <td>Total Time</td> <td>12000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instruction Received</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument Actual Simulated		Rotorcraft	Glider	Lighter Than Air	Total Time	12000										Pilot In Command(PIC)											Instructor											Instruction Received											Last 90 Days											Last 30 Days											Last 24 Hours										
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? No																																																																																									
				Second Pilot? No																																																																																									
Flight Plan/Itinerary																																																																																													
Type of Flight Plan Filed: None																																																																																													
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<div>FACTUAL REPORT - AVIATION</div> <div>Page 3</div>																																																																																													

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		Occurrence Date: 02/03/1995	
		Occurrence Type: Accident	

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Not Reported	
Lowest Ceiling: Overcast		800 Ft. AGL	Visibility: 3 SM	Altimeter: 30.00	"Hg
Temperature: 12 °C	Dew Point: 9 °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction:	Wind Speed: Calm		Wind Gusts:		
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM				
Precip and/or Obscuration:					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -				1	1
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	1	1

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: LAX95LA096	
	Occurrence Date: 02/03/1995	
	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) JEFF RICH		
Additional Persons Participating in This Accident/Incident Investigation: FRANK MILLER FRESNO, CA		
<div>FACTUAL REPORT - AVIATION</div> <div>Page 5</div>		